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09/817,777	03/26/2001	Richard H. Bailey		7818

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EXAMINER

PHAM, TUAN

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 04/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/817,777

Applicant(s)

BAILEY, RICHARD H.

Examiner

TUAN A PHAM

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-30, 32-39 and 41-47 is/are allowed.
- 6) ☒ Claim(s) 1-18, 31, and 40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 and 9-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bella (U.S. Patent No. 6,137,880) in view of Eckert (U.S. Patent No. 6,473,507).

**Regarding claim 1**, Bella teaches an ADSL POTS splitter including an enhanced low pass filter, the enhanced low pass filter (see figure 1, central low pass filter 124), comprising:

a first filter capacitor including a first lead and a second lead (see figure 5, capacitor C11, col.7, ln.49-60);

a first non-isolated inductor including a first winding and a second winding (see figure 5, inductor L3, col.7, ln.49-60); and

an isolated inductor including a first winding and a second winding (see figure 5, inductor L2), the first winding of the isolated inductor connected in series with the first winding of the first non-isolated inductor and to the first lead of the first filter capacitor, the second winding of the isolated inductor connected in series with the second winding of the first non-isolated inductor and to the second lead of the first filter capacitor (see figure 5, L2, L3, capacitor C11, col.7, ln.49-60).

It should be noticed that Bella fails to clearly teach the first non isolated inductor has a respective DC saturation current and the isolated inductor has a respective DC saturation current, the DC saturation current of the first non isolated inductor being substantially greater than the DC saturation current of the isolated inductor for achieving higher inductance in the isolated inductor. However, Eckert teaches such features (see col.7, ln.47-65, col.8, ln.1-45, col.10, ln.60-67) (e.g., the saturation current level can be determined through various design criteria, such as the permeability of the inductor's core material, the shape of the inductor, the type of the inductor, and the number of windings. Thus, the saturation current level depend on all the condition as stated above) for a purpose of controlling the on-hook and off-hook state in the telephone system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of non isolated inductor has a respective DC saturation current and the isolated inductor has a respective DC saturation current, the DC saturation current of the first non isolated inductor being substantially greater than the DC saturation current of the isolated inductor for achieving higher inductance in the isolated inductor, as taught by Eckert, into view of Bella in order to improve the isolating transients between the POTS and ADSL signal.

**Regarding claim 2,** Bella further teaches the enhanced low pass filter further comprising: a common mode choke including a first winding and a second winding, the first winding of the common mode choke connected in series with the first winding of the first non-isolated inductor and with the first winding of the isolated inductor, the second

winding of the common mode choke connected in series with the second winding of the first non-isolated inductor and with the second winding of the isolated inductor (see figure 5, inductor L1, col.12, ln.23-33).

**Regarding claim 3**, Bella further teaches the enhanced low pass filter wherein the common mode choke is connected between the first non-isolated inductor and the first filter capacitor (see figure 5, capacitor C11, inductor L2, L3).

**Regarding claim 4**, Bella further teaches the enhanced low pass filter wherein the common mode choke is a bifilar wound inductor (see figure 5, inductor L1, bifilar transformer is a bifilar wound inductors).

**Regarding claim 5**, Eckert further teaches the enhanced low pass filter wherein the first non-isolated inductor has a respective DC saturation current and the common mode choke has a respective DC saturation current, the DC saturation current of the first non-isolated inductor being substantially greater than the DC saturation current of the common mode choke (see col.7, ln.47-65, col.8, ln.1-45, col.10, ln.60-67) (e.g., the saturation current level can be determined through various design criteria, such as the permeability of the inductor's core material, the shape of the inductor, the type of the inductor, and the number of windings. Therefore, the saturation current level depends on all the condition as stated above).

**Regarding claim 6**, Eckert further teaches the enhanced low pass filter wherein the isolated inductor is essentially the same physical size as than the first non-isolated inductor (see figure 4, inductor 244, 246, 248, 249). It is well known in the art to choose

the way of design the inductor by using the same inductor's core material, and the number of windings to achieve the same physical size of the inductor.

**Regarding claims 9 and 16**, Bella further teaches the enhanced low pass filter further comprising: an inductor damping resistor connected in parallel with each the winding of each the inductor (see figure 5, resistor 12, 13, 14, 15, col.8, ln.15-25).

**Regarding claims 10 and 17**, Bella further teaches the enhanced low pass filter further comprising: an attenuation pole tuning capacitor connected in parallel with each the winding of the isolated inductor (see figure 5, capacitor C 12, C13, col.8, ln.15-25).

**Regarding claim 11**, Bella further teaches the enhanced low pass filter further comprising: a second non-isolated inductor connected to the first non-isolated inductor and including a first winding and a second winding, the first winding of the second non-isolated inductor connected in series with the first winding of the first non isolated inductor, the second winding of the second non-isolated inductor connected in series with the second winding of the first non-isolated inductor (see figure 5, inductor L3, col.12, ln.23-33).

**Regarding claims 12, and 14-15**, Bella further teaches the enhanced low pass filter wherein the first non-isolated inductor and the second non-isolated inductor each have respective physical attributes and respective electrical attributes, the physical and electrical attributes of the first non-isolated inductor being essentially the same as the physical and electrical attributes of the second non-isolated inductor (see figure 5, inductor L2, L3, col.12, ln.23-33). ). It is well known in the art to choose the way of design the inductor by using the same inductor's core material, and the number of

windings to achieve the same physical size and the same electrical attributes of the inductor.

**Regarding claim 13**, Eckert further teaches the enhanced low pass filter wherein said respective physical and electrical attributes of the first and the second non-isolated inductors include physical size and DC saturation current level, respectively (see figure 4, inductor 244, 246, 248, 249, col.8, ln.1-45). It is well known in the art to choose the way of design the inductor by using the same inductor's core material, and the number of windings to achieve the same physical size and DC saturation level of the inductor.

3. Claims 31 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy et al. (U.S. Patent No. 6,690,721, hereinafter, "Murphy") in view of Bella (U.S. Patent No. 6,137,880).

**Regarding claims 31 and 40**, Murphy teaches a communication apparatus, comprising:

a digital subscriber line access multiplexer (see figure 1, multiplexer, col.3, ln.25-40);

a central office ADSL transceiver unit electrically connected to the DSLAM (see figure 1, ATU 18, col.3, ln.25-40); and

a POTS splitter including an enhanced low pass filter, the enhanced low pass filter electrically connected to the central office ADSL transceiver unit and to a remote communication apparatus, the enhanced low pass filter comprising (see figure 1, splitter 20, col.3, ln.25-45):

It should be noticed that Murphy fails to clearly teaches a first filter capacitor including a first lead and a second lead; a first non-isolated inductor including a first winding and a second winding; and an isolated inductor including a first winding and a second winding, the first winding of the isolated inductor connected in series with the first winding of the first non-isolated inductor and to the first lead of the first filter capacitor, the second winding of the isolated inductor connected in series with the second winding of the first non-isolated inductor and to the second lead of the first filter capacitor. However, Bella teaches such features (see figure 5, capacitor C11, inductor L2, inductor L3, col.7, ln.49-60) for a purpose of using the low pass filter and high pass filter in the central office.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of a first filter capacitor including a first lead and a second lead; a first non-isolated inductor including a first winding and a second winding; and an isolated inductor including a first winding and a second winding, the first winding of the isolated inductor connected in series with the first winding of the first non-isolated inductor and to the first lead of the first filter capacitor, the second winding of the isolated inductor connected in series with the second winding of the first non-isolated inductor and to the second lead of the first filter capacitor, as taught by Bella, into view of Murphy in order to allow for simultaneous voice and data to transmit over communication system.



4. Claims 31 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy et al. (U.S. Patent No. 6,690,721, hereinafter, "Murphy") in view of Bella (U.S. Patent No. 6,137,880) as applied to claims 31 and 40 above, and further in view of Eckert (U.S. Patent No. 6,473,507).

**Regarding claims 31 and 40**, Murphy and Bella, in combination, fails to clearly teach the first non isolated inductor has a respective DC saturation current and the isolated inductor has a respective DC saturation current, the DC saturation current of the first non isolated inductor being substantially greater than the DC saturation current of the isolated inductor for achieving higher inductance in the isolated inductor. However, Eckert teaches such features (see col.7, ln.47-65, col.8, ln.1-45, col.10, ln.60-67) (e.g., the saturation current level can be determined through various design criteria, such as the permeability of the inductor's core material, the shape of the inductor, the type of the inductor, and the number of windings. Therefore, the saturation current level depend on all the condition as stated above) for a purpose of controlling the on-hook and off-hook state in the telephone system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of non isolated inductor has a respective DC saturation current and the isolated inductor has a respective DC saturation current, the DC saturation current of the first non isolated inductor being substantially greater than the DC saturation current of the isolated inductor for achieving higher inductance in the isolated inductor, as taught by Eckert, into view of Murphy and Bella in order to improve the isolating transients between the POTS and ADSL signal.

5. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bella (U.S. Patent No. 6,137,880) in view of Eckert (U.S. Patent No. 6,473,507) as applied to claim 1 above, and further in view of Nobusawa et al. (Japan Patent No. JP354129453A, hereinafter, "Nobusawa").

**Regarding claim 7**, Bella and Eckert, in combination, fails to clearly teach a common mode choke damping resistor connected in parallel with each winding of the common mode choke. However, Nobusawa teaches such features (see figure 6, constitution) for a purpose of reducing the electromagnetic in the inductor core.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of common mode choke damping resistor connected in parallel with each winding of the common mode choke, as taught by Nobusawa, into view of Bella and Eckert in order to reduce the noise passing through the inductor core.

**Regarding claim 8**, Bella further teaches the enhanced low pass filter further comprising: an attenuation pole tuning capacitor connected in parallel with each the winding of the isolated inductor (see figure 5, capacitor C12, C13).

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bella (U.S. Patent No. 6,137,880) in view of Eckert (U.S. Patent No. 6,473,507) as applied to claim 1 above, and further in view of Kiko (U.S. Patent No. 6,181,777).

**Regarding claim 18**, Bella and Eckert, in combination, fails to clearly teach the enhanced low pass filter wherein: each the first and the second non-isolated inductors includes a respective dual section bobbin; and each winding of the first and the second non-isolated inductors is wound on a respective section of the respective dual section bobbin. However, Kiko teaches such features (see col.11, ln.35-45) for a purpose of reducing the inductor's interwinding capacitance.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of low pass filter wherein: each the first and the second non-isolated inductors includes a respective dual section bobbin; and each winding of the first and the second non-isolated inductors is wound on a respective section of the respective dual section bobbin, as taught by Kiko, into view of Bella and Eckert in order to reduce the manufacture cost and number of component.

### ***Allowable Subject Matter***

7. Claims 19-30, 32-39, and 41-47 are allowed.

### **Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In order to expedite the prosecution of this application, the applicants are also requested to consider the following references. Although Biran et al. (U.S. Patent No. 5,627,501), Viadella et al. (U.S. Patent No. 6,385,315), Sun et al. (U.S.

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Patent No. 6,94,016), and Snow et al. (U.S. Patent No. 6,418,221) are not applied into this Office Action, they are also called to Applicants attention. They may be used in future Office Action(s). These references are also concerned for supporting the system and method for providing data and voice services over the telephone line and common mode choke in low pass filter.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is (703) 305-4987. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz can be reached on (703) 305-4708 and

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April 7, 2004

Examiner

Tuan Pham

  
CURTIS KUNTZ  
SUPERVISORY PATENT EXAMINER  
EBC CENTER 2600